



MONTGOMERY COUNTY FIRE AND RESCUE SERVICE DRIVER/OPERATOR TRAINING PROGRAM

Practical Application Guide Sheet

Pump Inspection/Pump Knowledge (Revised March 2015)

Driver Performance Competency: Driver candidate will perform a daily checkout of the pump. This will include: the pump, pump operation, foam systems, CAFS system, all hose and nozzles, tools and appliances. Candidate must demonstrate a thorough knowledge and understanding of the capabilities of the systems associated with Montgomery County Engine Companies. While the candidate will be performing a daily checkout, they will be required to verbally explain maintenance procedures that must be performed on a weekly and monthly basis. It is not necessary that this evolution be completed in the exact order listed; however it must be completed in a logical manner.

Engine Walk Around

1. Position the engine on a flat, safe surface. _____(1)
2. Apply parking brake, turn engine off and place wheel chock in appropriate location. _____(2)
3. Check CAFS Air Compressor fluid reservoir for proper fluid level when oil is cool and not frothy. _____(2)
4. Ensure all caps and plugs are present and secure. _____(2)
5. Open all bleeders and drains. _____(1)
6. Exercise all pre-connected line gate valves and lubricate if necessary. _____(2)
7. Close all bleeders and drains. _____(2)
8. Check all hose/hose lines looking for proper length, proper packing, straight stream nozzle pattern, and a closed nozzle bale. Ensure safety flaps are secure. _____(2)
9. Explain the length, diameter, nozzle type and orifice size, GPM, PSI, and product capabilities of all hose/hose lines. _____(5)

10. Explain what manifold each discharge is plumbed off.
Explain the GPM capabilities and product capabilities
of each manifold. _____(5)
11. Inspect Humat Valve and Hydrant Wrench for proper
operation. Inspect Clappered Siamese for proper
operation and configuration. _____(1)
12. Explain what manifold the tank fill and pump cooler are
plumbed off of. _____(2)
13. Check all outside compartments for proper inventory. Candidate will
have a thorough knowledge of inventory prior to opening
each compartment. _____(2)
14. Check Water/Oil Heat Exchanger water strainer for
for debris. _____(2)
15. Visually inspect Water/Oil Heat Exchanger. Explain how the
Water/Oil Heat Exchanger works and its purpose. _____(2)
16. Visually inspect the Primer Pump. Explain the principle
behind how the Primer Pump works. _____(2)
17. Visually inspect the Transfer Case. Explain the purpose of
the Transfer Case. _____(2)
18. Ensure all relief valve discharges are secure, free of debris,
and not capped. _____(2)

Pump In Gear

19. Double check that all discharges are closed prior to placing
pump in gear. _____(1)
20. Turn engine on and inspect gauges for proper operation. _____(1)
21. Engage pump. Listen for the pump to engage,
speedometer is reading between 10-15 MPH, green
“Ok To Pump When Lit” light is illuminated, and you can
hear the Air Compressor running. _____(1)

22. Observe: Pump panel gauges are illuminated, FoamLogix pump is on, CAFS Air Compressor is on and producing pressure (Red Needle), positive discharge on the Master Discharge Gauge (Black Needle), and “Tank To Pump” valve is open. _____(1)
23. Ensure pump cooler valve is open, and crack tank fill valve to ensure cooling. _____(1)
24. Visually observe “Tank To Pump” valve and air actuated piston. Cycle through the closed and open positions and observe for proper operation. _____(1)
25. Explain what 4 functions the CAFS Pro controller monitors.
(Current Air Flow in CFM, Air to Water Injection Ratio, Air Compressor Temperature, Compressor Run Hours) _____(1)
26. Cycle through the 4 functions of the CAFS Pro controller to ensure there are not any error codes. _____(1)
27. Explain what the air ratio ranges are for: wet, fluid and dry CAFS foam. (Wet = 0.5-1.5; Fluid = 2.0-3.0, Dry = 11) _____(2)
28. Explain what 4 functions the FoamLogix controller monitors.
(Current Product Flow in GPM Through Manifold, Current % Foam Injection Rate, Total Water Flowed in Current Session, Total Class A Foam Concentrate used in Current Session) _____(1)
29. Explain what one LED, all LEDs, and no LEDs lit on the FoamLogix controller indicates.
(No LED = Off, 1 LED = On, All LEDs = Max of 5 GPM Foam Injection) _____(2)
30. Test TPM at 100 and 150 PSI. Note the gauge reading vs. when the Internal Relief Valve is initially activated (solid orange light.) _____(2)
31. With TPM set just above 100 PSI, throttle up to 100 PSI and observe Master Discharge Gauge for proper tracking of water and air pressures. _____(1)
32. Leave the throttle at 100 PSI for 15 minutes and observe the temperature of the Air Compressor to ensure proper cooling.
(State that the CAFS Air Compressor’s audible alarm will sound at 205 degrees F and will disengage at 220 degrees F). _____(2)

33. Throttle down to idle, place the CAFS Pro controller in standby. Next turn off the CAFS Pro controller THEN turn off the FoanLogix pump. _____(1)
34. Throttle up to 1,100 RPMs and test Primer Pump. Do not bump test the ESP Primer and do not run for longer than 45 seconds. Explain how the Primer works. _____(2)
35. Test 4-Way Priming valve for smooth operation between all 4 settings. Explain the purpose of the 4-Way Priming valve. _____(1)
36. Test air horns from pump panel. _____(1)
37. Test Thermal Relief Valve audible and visual alarm.
(State that the Thermal Relief Valve activates at 120 degrees F.
Explain how the Thermal Relief Valve works.) _____(2)
38. Disconnect rear soft sleeve. Place Auto Fill in the “manual” position. Manually open the Auto Fill valve. Place back in the “automatic” position. Observe the lights to see if valve indicator light returns to red. While this test does not confirm that the Auto Fill is properly operating, it can identify a problem. Describe the functions and limitations encountered when relying on Auto Fill for water supply. _____(2)
39. Remove 4” intake caps. Open and close each MIV with the electric switch. Ensure each valve opens electronically. Ensure each MIV manual override knob is present. Ensure every intake screen is present and explain purpose of screens
(Purpose of screens: 1- Prevent debris from entering pump, and
2 – Sacrificial anode - reduces degradation of internal pump components). _____(1)
40. Open TPM to just over 150 PSI. Pull Primer to evacuate air from the pump. With discharges capped, open both Drivers Side 2 1/2” discharges and both Officers Side High Flow Discharges. Throttle up 150 PSI. There should not be more than 10 PSI variation between Master Discharge Gauge and individual discharge gauges under static pressure. Throttle down to idle, close discharges, open appropriate bleeders and return TPM to “0.” Ensure LDH discharge manual override wheels are present. _____(4)
41. Disengage pump. _____(1)

42. Ensure CAFS system flushes. _____(1)
43. Check the level of the Class A and B tanks via the lights above the pump panel. _____(2)
44. Check the indicator lights for the water tank and compare to the level of the tank. _____(2)
45. Check the deck gun for proper operation. Candidate will identify the various tip sizes and the GPMs per the rule of 8's. _____(5)

Prepare Engine to Return to Service

46. Clean water strainer for the Water/Oil Heat Exchanger. _____(1)
47. Take all intake plugs and discharge caps off to drain water. Replace all caps, plugs and rear soft sleeve. Lubricate as necessary. _____(1)
48. Ensure throttle is all the way down, TPM is set to "0," Pump Cooler is open, Engine Cooler is closed for normal operation, fill water tank as necessary. _____(2)

Weekly Maintenance (explain)

49. Back flush pump (for testing purposes this will be completed after drafting). _____(1)
50. Test the operation of Auto Fill. Ensure Auto Fill switch is in the "Automatic" position. Obtain a positive pressure water source and flow water through a discharge. Ensure Auto Fill valve opens at 3/4 full and closes at 7/8 full. _____(2)
51. Test/exercise Outboard Relief Valves on Officers High Flow discharges. Open TPM to approximately 220 PSI. Obtain a positive pressure water source through an open MIV. Ensure High Flow Discharges are capped. Open "Officers #1 Discharge." Throttle up and note the discharge pressure that water starts dumping on the ground from the Outboard Relief Valve. Throttle down and close discharge valve. Open bleeder. Repeat process with the "Officers #2 Discharge" _____(2)

52. Test/exercise the TPM External Relief Valve. Obtain a positive pressure water source through an open MIV. Open TPM to approximately 200 PSI. Throttle up to 150 PSI. Turn the TPM down until the External Relief valve opens discharging water on the ground. Note that the orange indicator light should be flashing. Open the TPM up to close the Relief Valve. Throttle down and close the MIV. _____(2)
53. Lubricate all threads and Storz caps on intakes and discharges. _____(1)
54. Drain water from air tanks. _____(1)

Monthly Maintenance (explain)

55. Lubricate Zerk fittings for the following valves:
CAFS Air Compressor, LDH Discharge, Auto Tank Fill, and Tank to Pump. Candidate will explain what grease to use, how much grease to inject, what position the valve should be in while injecting the grease, and the steps to exercise each individual valve. _____(2)
56. Flush Class B system. Candidate will explain how to properly flush the Class B system. _____(2)
57. Candidate will explain how to drain water from the CAFS Air Compressor Oil Reservoir. _____(1)

Candidate Score= _____/100

PASS

FAIL

Test Evaluator

Date

Critical Fail Points

Failure to successfully perform any of the following components will result in an automatic failure of this evolution regardless of total score.

- Failure to apply a wheel chock**
- Improper testing of the TPM at any stage of the evolution**
- Improper sequencing of operator steps that results in improper or inadequate testing of pump or related components**
- Failure to ensure that lines and appliances are safely secured to the apparatus**
- Failure to ensure proper appliance and/or hose configuration**
- Failure to correctly explain the length, diameter, nozzle type and orifice size, GPM, PSI, and product capabilities of hose/hose lines**
- Activation of the Thermal Relief Valve**